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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/827,785	04/06/2001	Patrick Florent	B45096C1	7816

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GLAXOSMITHKLINE
Corporate Intellectual Property - UW2220
P.O. Box 1539
King of Prussia, PA 19406-0939

EXAMINER	
LUCAS, ZACHARIAH	
ART UNIT	**PAPER NUMBER**
1648	6

DATE MAILED: 02/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/827,785	FLORENT ET AL.	
	Examiner	Art Unit	
	Zachariah Lucas	1648	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 December 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Status of the Claims

1. Claims 1-9 are pending and under consideration in the application.

2. Claims 1-9 were rejected in the action mailed on May 23, 2002 (the prior action). Claim 1 was amended in the response filed December 2, 2002 (Amend. B).

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. **(Prior Rejection-Withdrawn)** Claims 1 and 3-9 were rejected in the prior action under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Prior to the changes made in Amend. B, claim 1 of the application used multiple possible ranges of concentrations for each of the vaccine constituents. In view of the amendment made to the claims, the rejection is hereby withdrawn.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. **(Prior Rejection- Maintained)** Claims 1 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feery et al, Med. J. Aust. 1:128-30 (Feery) in view of Edwards et al, Ped. Vol. 96 supp., pp. 548-57 (1995). As amended, claim 1 describes a .5 ml dose of a DTP comprising antigens as described as follows: D between 1-4 Lf, T does not exceed 10 Lf, PT is 2-10 μg, FHA is 2-10 μg, and 69K is between .5-3 μg per .5 ml dose.

The applicant traverses the rejection with the following arguments: 1) there is no motivation to select and combine the BSc-3P vaccine disclosed in Edwards with the vaccine of Feery; 2)there would be no reasonable expectation of success from such a combination as they would have no reason to expect that a lower dosage of DTPa would provide effective protection.

The applicants first argue that there is no motivation to select the BSc-3P vaccine from the 13 listed in Edwards. The Examiner picked this vaccine because this vaccine was the one that fit the criteria set by the claims. However, the examiner does not see the need to justify the use of this vaccine as opposed to the others for combination with Feery because the teachings of Feery may be equally combined with any of the known vaccine formulations disclosed by Edwards. Edwards points out that none of the vaccine were "consistently more or less immunogenic with respect to all of its included antigens." This indicates that it would be just as obvious to one of ordinary skill in the art to use one of the disclosed formulations as any other. As it would have been obvious to use any of them, it would have been equally obvious to use one of them.

The applicant then argues that one of ordinary skill in the art would have had no reasonable expectation of success for achieving an effective vaccine by combining the lower concentration of D taught in Feery with the vaccine compositions taught by Edwards. The applicant asserts that there is an unpredictability in the combination of various known antigens in

a vaccine. However, the applicant then argues that such unpredictability does not apply with regards to Diphtheria in that a higher dose of D in a vaccine is expected to achieve a greater immune response. In support of this, the applicant points to two vaccine compositions in Edwards where one with a lower D content achieves a lesser anti-diphtheria reaction. The examiner agrees that if the sole issue involved was achieving the greatest potential anti-diphtheria reaction, the art may have taught away from the present invention. However, the applicant failed to consider the teachings of Feery.

Feery teaches that not only is a lower D content adequate to induce an immune response, but that reducing the diphtheria content of a vaccine also reduces what the reference identifies as an Arthus-type reaction. Page 128, right column. Thus, even if there is a decrease in the diphtheria response, the reference teaches other motivations for one of ordinary skill in the art to apply the Feery teachings to the vaccines taught by Edwards.

The applicant also points out that Edwards teaches that there were unexpected variations in the efficacy of the combined vaccines against diphtheria that appeared to be unrelated to the diphtheria concentration in the vaccine. The applicant argues that this is indicative of an unpredictability that would disrupt the expectation that those in the art who reduce the diphtheria content would maintain an effective vaccine. The examiner disagrees. While the applicants correctly interpret Edwards, it is not clear that one of ordinary skill in the art would necessarily have had lacked a reasonable belief that the reduction of diphtheria would result in a lower reaction against diphtheria. Instead, the teachings of Edwards seem to indicate that the increasing the diphtheria concentration would not have necessarily improved the efficacy of the vaccine, and that there was some freedom to adjust the diphtheria content of the vaccine, although the

results of any particular alteration would not have been immediately obvious to those making the change. In view of the teachings by Feery (both that anti-diphtheria efficacy is not the only factor to be considered and regarding the efficacy of the lower concentration of the vaccine), and the indications in Edwards that there is room to adjust the vaccine's diphtheria content, the examiner is left unconvinced that the unpredictability indicated in Edwards would have left those in the art without a reasonable expectation of success.

The applicant's note that Feery does not teach DT in combination with Pertussis is noted. However, the combined teaching of Edwards (indicating that vaccines with varying concentration of diphtheria in the presence of pertussis do retain the ability to cause protective responses in most subjects) and Feery (teaching both that the lower concentration is effective, and that other concerns than efficacy are involved in the determination of the Diphtheria vaccine content), tend to indicate that this is not an important issue. It would still have been obvious to one of ordinary skill in the art to combine the references. Even assuming that those in the art may not have had the same confidence in preventing Diphtheria with the resulting vaccine as they would have had with a higher D content, they would still have had a reasonable expectation that the resulting composition would have retained some efficacy in preventing diphtheria with a lesser potential for causing other unintended reactions.

For these reasons, and for the reasons of record, the rejection is maintained.

7. **(Prior Rejection-Maintained)** Claim 2 was rejected under 35 U.S.C. 103(a) as being unpatentable over Feery in view of Edwards. Claim 2 describes a multivalent vaccine comprising the following constituents at the stated concentrations in a .5 ml dosage: PT- 8μg, FHA – 8μg,

69K- 2.5μg, D- 2Lf, and T- 5Lf. The applicant traverses this rejection both for the reasons stated above against the rejection of claim 1. The applicant also states that there is no motivation in Edwards to select the vaccine composition that is most similar to the claimed composition. The first argument was addressed above. The second argument is not found persuasive because the examiner is not suggesting that either Feery or Edwards suggests the alteration of the Biocine vaccine in particular. Feery teaches the reduction of diphtheria, and an effective concentration of tetanus in genera. These teachings may be applied equally to all of the vaccine disclosed in Edwards. As such, it would have been obvious to those in the art to adjust any or all of those vaccines, including the Biocine vaccine. Thus as the Biocine vaccine is one of the vaccines that it would be obvious to one of ordinary skill in the art to have adjusted, the claimed composition is obvious.

8. **(Prior Rejection- Maintained)** Claims 1, 3-8, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feery, and Edwards, and further in view of Petre et al, PCT/EP93/01276 (Petre) and Eckhardt et al. U.S. Patent Number 5,895,655 (the '655 patent). The rejection of these claims is traversed for what appears to be the same reasons as discussed in with regards to claim 1 above. Therefore, the rejection of the present claims is maintained for the reasons discussed above, and for the reasons of record.

Conclusion

9. The examiner notes that a PTO-1449 and two PTO form 892s from a parent application have been filed, and the references duly examined by the examiner. However, unless a PTO-

1449 for the present applicant is filed, the references in those filings will not be made of record in the present case.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zachariah Lucas whose telephone number is 703-308-4240. The examiner can normally be reached on Monday-Friday, 8 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Housel can be reached on 703-308-4027. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-4242 for regular communications and 703-872-9307 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0196.

Z. Lucas
Patent Examiner
February 4, 2003

JAMES HOUSEL 2/10/03
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600